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Spraying the Potato Crop

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SPRAYING THE POTATO CROP

by

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A. WHY SPRAY?

"Spraying of potato vines is an absolutely essential process if successful culture is to be realized. The attacks of disastrous diseases in the field make it a necessity which must not be overlooked. Bordeaux mixture is the greatest of all sprays for potato diseases in the field. Any patent spray bought will be only a spray based on this one." S. D. Bulletin 196.

"For many years potato spraying experiments have been conducted in several states. The experiments have been conducted on experiment station grounds and on farms in various parts of the country. The applications have been made by scientific men and by farmers with hand machines and with traction sprayers. The conclusion in nearly every case has been that it pays to spray with Bordeaux." Dr. A. W. Gilbert, Cornell University.

The foregoing statements should be conclusive as regards the advisability of spraying with Bordeaux. Many of the most successful potato growers of South Dakota use Bordeaux and have accepted the practice as very necessary to the successful growing of potatoes. "Yields have been increased as high as 224 bushels per acre as resulting from the use of Bordeaux." (Vermont Station Bulletin 159). This is, of course, an unusual increase and is not typical but increases of 50% may be reasonably expected.

B. DIFFERENT KINDS OF SPRAYS:

The most important spray, known as the Bordeaux mixture, is made up as follows if 50 gallons of solution

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be desired:

1st. Dissolve 5 pounds of copper sulphate (bluestone) in 25 gallons of water. This is done by suspending the bluestone in a coarse woven sack just under the surface of the water. A wooden barrel should be used for this solution.

2nd. Slake 5 pounds of unslaked or stone lime (quick lime) in water and then dilute to 25 gallons.

3rd. Pour the copper sulphate and lime solutions together stirring thoroughly.

KEEP COPPER SULPHATE AND LIME SOLUTIONS SEPARATE UNTIL READY TO SPRAY.

(Some of the ready mixed Bordeaux preparations on the market are alright to use but are more expensive although much handier to use for small lots.)

When a combined insecticide and fungicide is wanted add 8 to 12 ounces Paris Green to each 50 gallons of the Bordeaux mixture. No further lime is necessary. If lead arsenate is to be used add 3 to 5 pounds to each 50 gallons of Bordeaux.

C. SPRAYING FOR DISEASE:

A number of the most important potato diseases are caused by small organisms known as fungii and any substance used in killing these fungii is a fungicide. Bordeaux mixture is the most important, and in fact, the only fungicide used in the control of potato diseases. The presence of a coating of this substance on a plant gives protection to the plant from not only fungii but to some insects as well.

If adequate protection be expected spraying with Bordeaux must be started when plants are 6 to 8 inches high and continued every ten days or two weeks until plants are practically mature. Usually four sprayings are sufficient but often six sprayings are necessary for best results.

Figure 1. Showing operation of knapsack sprayer. (Courtesy International Harvester Company.)

The sprayer used is not the most important factor but the sprayer used must do good work if best results are to be expected. For small plots up to ½ acre in size, the small hand sprayers, such as the one shown in Figure 1 (to the left) is efficient. This sprayer shown is of the knapsack type and usually costs at retail from $10.00 to $20.00. A much cheaper type of knapsack sprayer is illustrated in Fig. 2 (below). This type is also very useful for small areas.

Any sprayer used should be so designed and operated to cover both the top and bottom of all leaves.

For larger areas the barrel type or traction sprayers are, of course, most desirable. When plants are nearly mature the Bordeaux mixture should be applied at the rate of 100 to 150 gallons per acre and at pressures of from 90 to 150 pounds.

D. SPRAYING FOR INSECTS:

In spraying potatoes for protection from insects the insecticide may be added to the Bordeaux mixture. (Any substance which is used to kill insects is called an insecticide.) The common insecticides used are Paris Green and lead arsenate. The lead arsenate has generally proven best. Paris Green, if used alone with water, usually has a tendency to burn the leaves and for that reason lime should be used with the poison. However, if Paris Green is used with Bordeaux mixture the addition of more lime is unnecessary as there is already lime in the Bordeaux solution. From one to one and one-half pounds of Paris Green is used to 50 gallons of Bordeaux mixture. From 3 to 4 pounds of lead arsenate is used for 50 gallons of Bordeaux mixture.

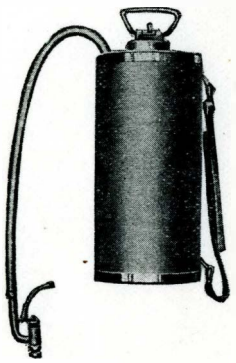

Figure 2.

The Bordeaux mixture alone acts as a repellant against leaf-hoppers and as these insects attack the leaves from underneath it is important to have a sprayer that will cover both sides of the leaves. The leaf-hopper is a very small pale green insect, about one-eighth of an inch long with large white eyes and a more or less distinct H on its body between the head and base of the wings. Adults fly and hop readily when disturbed.

The insecticide is added principally for poisoning the common potato bug otherwise called the Colorado beetle. The adult beetle is oval in shape, about 3/8 of an inch in length and a trifle narrower than long. The body is yellow and the wing covers are marked by ten black lines running lengthwise.

In conclusion we herewith give the main reasons why spraying is profitable:

SPRAYING WITH BORDEAUX PREVENTS DISEASE.

SPRAYING WITH BORDEAUX STIMULATES THE VINES TO GROW HARDIER AND REMAIN ALIVE LONGER.

SPRAYING WITH BORDEAUX TOGETHER WITH AN INSECTICIDE CONTROLS BOTH DISEASE AND BUGS.

SPRAYING WITH BORDEAUX REPELS ACTION OF LEAF HOPPER.

Growers should accept the evidence and make spraying of potatoes with Bordeaux a general farm practice every year, whether wet or dry, on both early and late varieties.

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